WORKPAPER 1

Workpaper 1

Total Costs - Number Pooling

TOTAL COST ANALYSIS

	Source	Total Cost	Type 2	Type 3
Network Costs	Workpaper 2	$207,613,233	$183,638,333	$23,974,900
OSS Costs	Workpaper 3	$129,824,656	$125,524,656	$4,300,000
Service Delivery Costs	Workpaper 4	$37,908,554	$37,908,554	$0
Deferrals of Splits		($3,239,692)	($3,239,692)	$0
SSP Acceleration Cost		$0	$0	$0
Total:		$372,106,751	$343,831,851	$28,274,900
% of Deployment Costs			92%	8%

DETAILED TYPE 2 COSTS FOR RECOVERY

	2000	2001	2002	2003	2004	2005	TOTAL
CAPITAL							
Network Costs	$24,650,231	$37,734,896	$19,613,481	$16,924,011	$12,479,550	$1,940,300	$113,342,469
OSS Costs	$1,500,000	$11,000,000	$0	$0	$0	$0	$12,500,000
Service Delivery Costs	$2,331,000	$970,000					$3,301,000
Total Capital	$28,481,231	$49,704,896	$19,613,481	$16,924,011	$12,479,550	$1,940,300	$129,143,469
EXPENSE							
Network Costs	$10,617,203	$19,729,949	$11,604,552	$9,090,616	$9,429,460	$9,824,084	$70,295,864
OSS Costs	$14,440,162	$60,372,427	$14,931,257	$7,770,810	$7,755,000	$7,755,000	$113,024,656
Service Delivery Costs	$6,067,252	$17,419,002	$2,947,875	$2,649,770	$2,717,747	$2,805,908	$34,607,554
Total Expense	$31,124,617	$97,521,378	$29,483,684	$19,511,196	$19,902,207	$20,384,992	$217,928,074
TOTAL DIRECT COSTS:	$59,605,848	$147,226,274	$49,097,165	$36,435,207	$32,381,757	$22,325,292	$347,071,543
SSP ACCELERATION	$0						$0
DEFERRALS OF SPLITS	($708,944)	($2,180,824)	($3,517,676)	($1,238,119)	$715,502	$3,690,370	($3,239,692)
TOTAL TYPE 2 COSTS FOR RECOVERY	$58,896,903	$145,045,450	$45,579,489	$35,197,088	$33,097,259	$26,015,661	$343,831,851

WORKPAPER 2

REDACTED -- FOR PUBLIC INSPECTION

Type 2 Network Recoverable Costs								
Switching SSP including all End Office and Tandem switching sites								
ref #	**Account**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
1AESS								
Total	1AESS							
4ESS								
Total	4ESS							
5ESS								
1	2681							
2	2681							
3	2212							
Total	5ESS							
DMS100								
9	2681							
10	2681							
11	2681							
12	2681							
13	2212							
Total	DMS100							
DMS10								
14	2212							
52	2212							
15	2681							
16	2212							
Total	DMS10							

Type 2 Network Recoverable Costs								
Switching SSP including all End Office and Tandem switching sites								
ref #	**Account**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
AXE10								
17	2212							
18	2212							
19	2681							
20	2681							
21	2212							
Total AXE10								
Miscellaneous Switching all switch types								
53	2212							
54	2232							
59	2212							
Total Misc Switch								
Total Switching								$100,098,798
Links STP to SCP								
22	2232							
23	6232							
24	6728							
Total Links								$308,100
SCP								
25	2212							
26	2681							
27	6212							
48	2212							
49	2681							

50	2681							
51	2681							
60	6212							
Total SCP								$15,397,171
Type 2 Network Recoverable Costs								
ref #	**Account**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
Miscellaneous Incremental Overhead Costs								
28	6535	$368,335	$538,000	$278,523	-	-	-	$1,184,857
29	6535	$219,446	$384,370	$398,918	$412,881	$427,331	$442,288	$2,285,235
30	6534	$470,270	$865,350	$896,656	$928,039	$960,520	$994,138	$5,114,973
31	6534	$140,007	$248,000	$128,553	-	-	-	$516,560
32	6534	$176,635	$384,750	$397,715	$119,748	$123,939	$128,277	$1,331,064
33	6534	$2,517,326	$2,230,500	-	-	-	-	$4,747,826
34	6534	$1,270,862	$2,170,500	$2,087,356	$2,160,458	$2,236,074	$2,314,337	$12,239,588
35	6534	$604,550	-	-	-	-	-	$604,550
36	6534	$606,681	$2,766,400	$2,591,463	$2,682,164	$2,776,041	$2,873,202	$14,295,951
37	6728	$105,600	$35,000	-	-	-	-	$140,600
38	2123	-	-	-	-	-	-	-
39	2122	$675,000	-	-	-	-	-	$675,000
40	6124	$439,171	$281,900	$153,800	$149,400	$149,400	$149,400	$1,323,071
41	2124	$9,000	-	-	-	-	-	$9,000
42	6535	$225,000	$225,000	$100,000	-	-	-	$550,000
43	6535	$200,000	$200,000	-	-	-	-	$400,000
44	6534	$2,124,720	$6,374,160	$2,124,720	$106,236	-	-	$10,729,836
45	6534	$345,000	$345,000	$172,500	-	-	-	$862,500
46	6122	-	$1,211,619	$1,499,647	$1,751,491	$1,970,355	$2,130,843	$8,563,954
47	6535	$700,000	$700,000	-	-	-	-	$1,400,000
55	6534	$33,300	$83,000	$85,700	$88,700	$91,800	$95,000	$477,500
56	6534	$21,700	$67,000	$69,600	$72,100	$74,600	$77,200	$382,200

Total Headcount		$11,252,603	$19,110,549	$10,985,152	$8,471,216	$8,810,060	$9,204,684	$67,834,264
Sub Totals								
	Type 2	$35,267,434	$57,464,845	$31,218,033	$26,014,627	$21,909,010	$11,764,384	$183,638,333
Type 3 Network Costs attributable to Number Pooling (non-recoverable)								
ref #	**Account**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**TOTAL**
1AESS								
Total	1AESS							
4ESS								
Total	4ESS							
5ESS								
Total	5ESS							
DMS100								
4	2212							
5	2212							
6	2212							
57	2212							
7	2212							
8	2212							
58	2212							
Total	DMS100							
DMS10								
Total	DMS10							
AXE10								
Total	AXE10							

Sub Totals								
	Type 3							$23,974,900
								$207,613,233

5-10-00

Number Pooling, Costs Descriptions for Projected Costs to be Incurred by Network (Operations and Technologies) (O&T)

General

Costs defined below contain estimated costs for 2000 through 2005 for the deployment of Number Pooling. Based on the timing, only a very small portion of costs have actually been incurred, as of this writing. Further, since the FCC has left open to extreme uncertainty both the implementation schedules and the scope of implementation, costs and timing are based on projections concerning what the States may do with the waiver process.

Through the LNP BFR process U S WEST has plans to equip 100% of its network to LNP by the end of 2000. U S WEST expects to be required to implement Number Pooling through the Trial Waiver process in a number of locations, many outside of the LNP defined MSAs, before the National Implementation of Number Pooling.

Specifically addressed are the cost requirements generated by the FCC to create a pool of numbers at the rate center level and the requirement observed to date in the various State filings for Number Pooling Trial Waivers in U S WEST's 14-State territory to implement number Pooling at the entire NPA level, not just the FCC's LNP implementation defined MSAs.

There is no determinable impact to the sale of queries with number pooling implementation. This negligible impact is true for both the direct queries and the default queries. No attempt is made to differentiate the cost of number pooling implementation between query and non-query related costs.

Ref Descriptive Title **Type Designation**

Description and Use with Number Pooling

The reference number corresponds to the data entries for the network portion of cost analysis for cost recovery. The descriptions provided below are more comprehensive than the information provided on that analysis work sheet.

FCC Docket 95-116; DA 98-2534 Paragraph 50 part (g) including part (h) and part (i)

All switches listed are equipped with LNP, are SSPs and perform End Office or End Office and Local Tandem or End Office and Access Tandem functions. Because of this variation in usage, no attempt is made to segregate the SSPs between End Office application and Tandem application. Number Pooling is only applicable in the End Office function.

1AESS family of switches and associated remote switches (information only)

This switch is an analog type electronic switch. This information is included for reference only. The 1AESS switches are expected to be removed from the U S WEST network by mid 2001. The 1AESS switch is not compatible with a number pooling environment. If U S WEST must build numbers into a 1AESS switch an NXX must be assigned to it. As of the time of this writing it is not anticipated that there will be a conflict in number pooling implementation schedule requirements, in either a trial format or at a National implementation level, and the need for new numbers to be assigned to the 1AESS switch. Should such a conflict arise between number pooling and numbering requirements either held orders will be created or a waiver must be approved by the appropriate commission excluding the specific switch from number pooling and allowing it to receive an entire NXX.

4ESS (information only)

U S WEST owns a single 4ESS switch that serves as an Access Tandem in Seattle, WA. This is a tandem only switch and is not included in number pooling.

5ESS Family of switches and associated remote switches

This switch is a digital type electronic switch. The generic operating system and associated hardware for that generic required to support number pooling features will be available on the switch prior the need to activate and use the number pooling features.

1 **5ESS Number Pooling Feature** 2

Lucent Technologies Inc., developed a feature functionality available on operating system generic release 5E14 known as Number Pooling Using Number Portability, 99-5E-7210, SFID 530 in accordance with ANSI Standards Committee T1S1.6 Technical Requirements Document TRQ 4, "Thousands Block Number Pooling Using Number Portability." This technical requirement specifically addresses the needs of the switching network to correctly route the call when 1) numbers are pooled into a switch but not assigned or 2) when numbers are pooled into a switch and a number of that pooled number set is ported to a different switch.

Condition 1 will be common as pooled blocks are initially assigned and should result in returning an unassigned number announcement to the calling party.

Condition 2 will occur when the originating network routes the call based on information received from the LNP query response that contains invalid routing information. Without this feature in place the switching network from both carriers will assume that all information and routing is correct and return an unassigned number announcement. With this feature in place the terminating carrier is responsible for inaccuracies in information for the originating carrier and will indicate to the originating carrier to release the call with a "Release With Cause – Code 26" error condition. This release can be used by the originating carrier to diagnose trouble conditions and to inform the calling party that a trouble conditions exists prohibiting the call from being completed.

Implementation of this feature causes concurrent work for operational support systems.

2 **5ESS Number group growth** **2**

This feature for the 5ESS is required to expand the number group capacity on certain of the 5ESS switches beyond the current limitation of 250 NXXs. This feature will also allow the 5ESS to operate with the same NXX associated with more than one NPA. This feature is designated as "Number Portability - NPA/NXX GROWTH TO 8000" and is designated as SFID 198. This feature is required in a number pooling environment when the total unique pooled in, ported in and native NPA-NXXs to that switch exceed or is expected to exceed the NXX limit of the switch, which is 250 assignable NXXs or when a single NXX will be populated on that switch in more than 1 NPA.

3 **5ESS Announcement Hardware for CC26 Treatment** **2**

This announcement is required in addition to the feature in item 1 to notify the U S WEST originating customer that the call cannot be routed as dialed due to a routing error. The announcement will instruct the caller to contact the repair center so that call routing can be repaired. Without this announcement in place the originating caller is routed to reorder tone, also known as Fast Busy Tone, which indicates a network congestion or a failure to route the call as required. Most callers assume this is a simple Busy Tone and will repeatedly attempt to complete the call prior to initiating a repair complaint.

DMS100 Family of Switches and Associated Remote Switches

This switch is a digital type electronic switch. The generic operating system and associated hardware for that generic required to support number pooling features may not be available on the switch prior the need to activate and use the number pooling features. All of these switches are equipped for SS7 and are SSP type offices. The total load placed on the processor of this switch type requires a processor replacement due to increased processor usage consumption caused by the Generic designated NA013.

4 **DMS100 NA012 Generic related hardware** 3

This entry represents the material that is required to be placed, including memory or improved processors, to enable the generic operating system NA012 to function, including the available optional features that this generic enables. This is the cost incurred to advance this previously scheduled software load to the point in time required to support the required features for Number Pooling.

5 **DMS100 Generic hardware NA013** 3

This entry represents the material that is required to be placed, including memory or improved processors, to enable the generic operating system NA013 to function, including the available optional features that this generic enables. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling.

6 **DMS100 Generic hardware NA012 PRI Processor Upgrades** 3

This entry represents the cost of upgrading the PRI processor cards in the impacted DMS100 switches requiring schedule advances. Without this upgrade when Generic Software Release NA012 is loaded any PRI circuits on that switch will fail. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling.

57 **DMS100 Generic NA011 Software** 3

This is the operating system designation by Nortel for the version of operating software required in the DMS100 switch place subsequent required generic software versions which are required to enable Number Pooling. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. This issue of the generic release software must be placed to enable Generic NA012 in item 7 below.

7 **DMS100 Generic NA012 Software** 3

This is the operating system designation by Nortel for the version of operating software required in the DMS100 switch to enable portions of the Number Pooling feature set to function. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. This issue of the generic release software must be placed to enable the required features in items 10 and 11 below.

8 DMS100 Generic NA013 Software **3**

This is the operating system designation by Nortel for the version of operating software required in the DMS100 switch to enable portions the Number Pooling feature set to function. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. This issue of the generic release software must be placed to enable the required feature in item 9 below.

58 DMS100 SLM III Processors **3**

This hardware memory addition known as System Load Module (SLM) is required with software generic release NA013 to provide adequate memory capacity for this generic software load. This is required when item 8 above is placed.

9 DMS100 NPE0005 Thousands block number pooling & grouping **2**

This feature designated Thousands Block Number Pooling NPE0005 by Nortel is required to provide solutions for 2 major problems introduced with Number Pooling.

The first problem is that numbers that are native to the switch, ported into the switch and pooled into the switch cannot be combined into the same grouping arrangement. A grouping arrangement for example is a multiple line hunt group, a Centrex Pickup Group or an ISDN private group. Without this feature in place numbers from more than 1 type (native, ported or pooled) cannot be assigned to the same group.

The second problem is to conform with the requirements of ANSI Standards Committee T1S1.6 Technical Requirements Document TRQ 4, "Thousands Block Number Pooling Using Number Portability." This technical requirement specifically addresses the needs of the switching network to correctly route the call when 1) numbers are pooled into a switch but not assigned or 2) when numbers are pooled into a switch and a number of that pooled number set is ported to a different switch.

Condition 1 will be common as pooled blocks are initially assigned and should result in returning an unassigned number announcement to the calling party.

Condition 2 will occur when the originating network routes the call based on information received from the LNP query response that contains invalid routing information. Without this feature in place the switching network from both carriers will assume that all information and routing is correct and return an unassigned number announcement. With this feature in place the terminating carrier is responsible for inaccuracies in information for the originating carrier and will indicate to the originating carrier to release the call with a "Release With Cause – Code 26" error condition. This release can be used by the originating carrier to diagnose trouble conditions and to inform the calling party that a trouble conditions exists prohibiting the call from being completed.

Implementation of this feature for release with cause creates concurrent work for operational support systems.

This feature is first available with software release NA013.

10 DMS100 NPE0004 Multiple NPA support Pooling 2

This feature designated Multiple NPA Support NPE0004 is required in a pooling and number optimization environment to enable grouping arrangements to function when the numbers assigned to the group are from more than 1 NPA. A grouping arrangement for example is a multiple line hunt group, a Centrex Pickup Group or an ISDN private group. Without this feature in place numbers from more than 1 NPA cannot be assigned to the same group. This feature is first available with software release NA012.

11 DMS100 BAS078 Duplicate NXX support with remotes 2

This feature designated Duplicate NXX Support with Remote Switches is required in a pooling environment to enable the host and its set of remote switches to share the same NPA-NXX in multiple locations. This feature functionality is required when there is more than 1 remote switching system in a rate center served by a common host switch, and the same pooled NPA-NXX is expected to be assigned is expected to be created to provide service on more than 1 of those remote switches. This feature is first available for use with software release NA012.

12 DMS100 NXX EXPANSION SUPPORT NPE00001, NPE00002 2

Features required to expand number group capacity in the DMS100 beyond 800 NXXs and to allow the DMS100 to operate with the same NXX associated with more than one NPA. This feature will also allow the DMS100 to operate with the same NXX associated with more than one NPA. This feature is designated as NXX EXPANSION SUPPORT NPE00001, NPE00002. These features are required in a number pooling environment when the total unique pooled in, ported in and native NPA-NXXs to that switch and its remote switches exceed or is expected to exceed the NXX limit of the switch, which is 800 assignable NXXs, or when a single NXX will be populated on that switch in more than 1 NPA.

13 DMS100 Announcement Hardware for CC26 Treatment 2

This announcement is required in addition to the feature in item 11 to notify the U S WEST originating customer that the call cannot be routed as dialed due to a routing error. The announcement will instruct the caller to contact the repair center so that call routing can be repaired. Without this announcement in place the originating caller is routed to reorder tone, also known as Fast Busy Tone, which indicates a network congestion or a failure to route the call as required.

Most callers assume this is a simple Busy Tone and will repeatedly attempt to complete the call prior to initiating a repair complaint.

DMS10 Family of Switches and Associated Remote Switches

This switch is a digital type electronic switch. The generic operating system required to support number pooling features will not be provisioned on the switch prior to the date that it is anticipated that Number Pooling will be required by either the State or the FCC. This switch type will be capable of correctly functioning in a Number Pooling environment with the placement of the correct Generics and Features.

14 **DMS10 Generic 412.20 Software Host and Stand Alone Switches** **2**

This is the operating system designation by Nortel for the version of the operating software required by the DMS10 switch to enable the Number Pooling feature set to function. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. There were no plans prior to Number Pooling to place this release of the generic operating program.

52 **DMS10 Memory Cards for Generic 412.20** **2**

This hardware memory addition is required with software generic release 412.20 to provide adequate memory capacity for this generic software load. This is required when item 14 above is placed.

15 **DMS10 Number Pooling Software package ID POOL** **2**

This feature designated Thousands Block Number Pooling POOL by Nortel is required to provide solutions for 2 major problems introduced with Number Pooling.

The first problem is that numbers that are native to the switch, ported into the switch and pooled into the switch cannot be combined into the same grouping arrangement. A grouping arrangement for example is a multiple line hunt group, a Centrex Pickup Group or an ISDN private group. Without this feature in place numbers from more than 1 type (native, ported or pooled) cannot be assigned to the same group.

The second problem is to conform with the requirements of ANSI Standards Committee T1S1.6 Technical Requirements Document TRQ 4, "Thousands Block Number Pooling Using Number Portability." This technical requirement specifically addresses the needs of the switching network to correctly route the call when 1) numbers are pooled into a switch but not assigned or 2) when numbers are pooled into a switch and a number of that pooled number set is ported to a different switch.

Condition 1 will be common as pooled blocks are initially assigned and should result in returning an unassigned number announcement to the calling party.

Condition 2 will occur when the originating network routes the call based on information received from the LNP query response that contains invalid routing information. Without this feature in place the switching network from both carriers will assume that all information and routing is correct and return an unassigned number announcement. With this feature in place the terminating carrier is responsible for inaccuracies in information for the originating carrier and will indicate to the originating carrier to release the call with a "Release With Cause – Code 26" error condition. This release can be used by the originating carrier to diagnose trouble conditions and to inform the calling party that a trouble conditions exists prohibiting the call from being completed.

Implementation in this feature for release with cause creates concurrent work for operational support systems.

This feature is first available with software release 412.20.

16 DMS10 Announcement Hardware for CC26 Treatment 2

This announcement is required in addition to the feature in item 15 to notify the U S WEST originating customer that the call cannot be routed as dialed due to a routing error. The announcement will instruct the caller to contact the repair center so that call routing can be repaired. Without this announcement in place the originating caller is routed to reorder tone, also known as Fast Busy Tone, which indicates a network congestion or a failure to route the call as required. Most callers assume this is a simple Busy Tone and will repeatedly attempt to complete the call prior to initiating a repair complaint.

AXE10 Family of Switches and Associated Remote Switches

This switch is a digital type electronic switch. The generic operating system required to support number pooling features will not be provisioned on the switch prior to the date that it is anticipated that Number Pooling will be required by either the State or the FCC. This switch type will be capable of correctly functioning in a Number Pooling environment with the placement of the correct Generics and Features.

17 AXE10 Generic L10R9.0 2

These are the designations by Ericsson for the operating system software required on the AXE10 switch to enable Number Pooling to function. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. There were no plans prior to Number Pooling to place either release of these generic operating programs. Generic release L10R9.0 is required to enable the feature in item 19 below. Generic release L10R10.0 is required to enable the feature in item 20 below.

18 AXE10 Generic L10R10.0 **2**

These are the designations by Ericsson for the operating system software required on the AXE10 switch to enable Number Pooling to function. This is the cost incurred to purchase and place this item in advance of the previously scheduled purchase to the point in time required to support the required features for Number Pooling. There were no plans prior to Number Pooling to place either release of these generic operating programs. Generic release L10R9.0 is required to enable the feature in item 19 below. Generic release L10R10.0 is required to enable the feature in item 20 below.

19 AXE Number Pooling Number Mix & Match and CC26 **2**

This feature functionality is not separately identified on this switch type. This feature designated Thousands Block Number Pooling by Ericsson is required to provide solutions for 2 major problems introduced with Number Pooling.

The first problem is that numbers that are native to the switch, ported into the switch and pooled into the switch cannot be combined into the same grouping arrangement. A grouping arrangement for example is a multiple line hunt group, a Centrex Pickup Group or an ISDN private group. Without this feature in place numbers from more than 1 type (native, ported or pooled) cannot be assigned to the same group.

The second problem is to conform with the requirements of ANSI Standards Committee T1S1.6 Technical Requirements Document TRQ 4, "Thousands Block Number Pooling Using Number Portability." This technical requirement specifically addresses the needs of the switching network to correctly route the call when 1) numbers are pooled into a switch but not assigned or 2) when numbers are pooled into a switch and a number of that pooled number set is ported to a different switch.

Condition 1 will be common as pooled blocks are initially assigned and should result in returning an unassigned number announcement to the calling party.

Condition 2 will occur when the originating network routes the call based on information received from the LNP query response that contains invalid routing information. Without this feature in place the switching network from both carriers will assume that all information and routing is correct and return an unassigned number announcement. With this feature in place the terminating carrier is responsible for inaccuracies in information for the originating carrier and will indicate to the originating carrier to release the call with a "Release With Cause – Code 26" error condition. This release can be used by the originating carrier to diagnose trouble conditions and to inform the calling party that a trouble conditions exists prohibiting the call from being completed.

Implementation in this feature for release with cause creates concurrent work for operational support systems.

This feature is first available with software release L10R9.0.

20 AXE Unique LRNs per RC **2**

This feature functionality is not separately identified on this switch type. This feature is first available with software release L10R10.0. This feature designated "Unique LRNs per Rate Center" by Ericsson is required to provide the capability of establishing multiple LRNs to a single switch. Specifically when the switch supports more than 1 Rate Center this feature will allow the creation and assignment of an LRN number on the switch for each Rate Center. U S WEST's current typical routing is to separate on different trunk groups local from toll traffic. This feature will be required at the time number pooling is implemented at the NPA level by the State. This feature provides for the continued correct routing and billing of the call and becomes essential in a Number Pooling environment. Without this feature in place the originating caller can be billed for completing a non-charge local call.

21 AXE10 Announcement Hardware for CC26 Treatment **2**

This announcement is required in addition to the feature in item 19 to notify the U S WEST originating customer that the call cannot be routed as dialed due to a routing error. The announcement will instruct the caller to contact the repair center so that call routing can be repaired. Without this announcement in place the originating caller is routed to reorder tone, also known as Fast Busy Tone, which indicates a network congestion or a failure to route the call as required. Most callers assume this is a simple Busy Tone and will repeatedly attempt to complete the call prior to initiating a repair complaint.

Miscellaneous Switching

These component pieces are required to provide for growth in the switching network for the added calling that will be generated by Voice Messaging providers in a Number Pooling Environment.

53 Miscellaneous Switching Inter Office Trunking Switch **2**

U S WEST provides interoffice transport for many voice messaging providers. A feature many offer to their customer base is to be able to send messages directly from the voice response unit (VRU) to another messaging subscriber. Most of these messaging systems require the NPA-NXX for the customer to be located on a single VRU. The VRU is typically connected to 1 or only a few switches which directly serves their subscriber. When a messaging provider operates more than a single VRU in the community and after number pooling is implemented, the addressing scheme will quickly become ambiguous since the NPA-NXX will begin to appear on more than a single switch. The simplest manner in which the

messaging provider can compensate for this situation is to leave the on the VRU associated with the NPA-NXX rather than the subscribers switch and rely on the PSTN to switch the call to the correct destination. This cost represents the inter-switch switched trunking portion of the increase in total trunking that will be required to provide PSTN capacity attributable to voice messaging in a pooling environment.

54 Miscellaneous Switching Inter Office Trunking Circuit 2

U S WEST provides interoffice transport for many voice messaging providers. A feature many offer to their customer base is to be able to send messages directly from the voice response unit (VRU) to another messaging subscriber. Most of these messaging systems require the NPA-NXX for the customer to be located on a single VRU. The VRU is typically connected to 1 or only a few switches which directly serves their subscriber. When a messaging provider operates more than a single VRU in the community and after number pooling is implemented, the addressing scheme will quickly become ambiguous since the NPA-NXX will begin to appear on more than a single switch. The simplest manner in which the messaging provider can compensate for this situation is to leave the on the VRU associated with the NPA-NXX rather than the subscribers switch and rely on the PSTN to switch the call to the correct destination. This cost represents the inter-switch circuit portion of the increase in total trunking that will be required to provide PSTN capacity attributable to voice messaging in a pooling environment.

59 Miscellaneous VMS Messaging Routers U S WEST VMS 2

U S WEST provides its own competitive voice messaging product. The voice response units require the NPA-NXX for the customer to be located on a single VRU. The VRU is typically connected to 1 or only a few switches which directly serves the subscriber. When number pooling is implemented, the addressing scheme will quickly become ambiguous since the NPA-NXX will begin to appear on more than a single switch. While inter-switch trunking can be added to accommodate the increase in traffic expected when pooling is implemented the administration in tracking which customer is located where is expected to become unmanageable. The placement of messaging routers internal to the voice messaging product will re-associate the customer's switch and with the VRU associated with the same switch. The placement of the messaging router will eliminate the growth in inter-switch trunking anticipated with the introduction of number pooling for the market segment served by U S WEST voice messaging.

FCC Docket 95-116; DA 98-2534 Paragraph 50 part (d)
LINKS SCP from STP

Links are added from existing STPs to the newly added MRP ISCP. This is the 2nd ISCP pair serving as a Message Relay Point. This ISCP paired arrangement has links crossing LATA boundaries.

22 Link Hardware **2**

This capital cost is to equip and build the required DS0 circuit equipment at both the STP and ISCP sites so that the links may be physically built to allow queries only for MRS. The costs identified are entirely attributable to Number Pooling.

23 Link Hardware expense **2**

This expense cost is to equip and build the required DS0 circuit equipment at both the STP and ISCP sites so that the links may be physically built to allow queries only for MRS. The costs identified are entirely attributable to Number Pooling.

24 Link Lease when crossing LATA boundaries **2**

This inter-LATA link expense cost is attributable to the placement of the Message Relay Point at the existing regional STP locations, of Denver and Phoenix. This permits the maximum ease in assigning and maintaining the required data base structure and routing structure for the MRP required queries. The STP pair associated with this ISCP pair is also split between Denver and Phoenix. Because of this wide geographic split, half of the links must cross LATA boundaries and must be leased from inter-LATA providers. The costs identified are entirely attributable to Number Pooling.

FCC Docket 95-116; DA 98-2534 Paragraph 50 part (c)
ISCP

The SCP selected for deployment of LNP is the Telcordia ISCP. There were 5 pairs purchased, 4 pairs for use with LRN queries and 1 pair serving as a Message Relay Point (MRP) for Message Relay Service (MRS) queries. The pair serving as the MRP was deployed regionally with the regional STPs split between Denver and Phoenix and will become exhausted due to total query volume with the introduction of number pooling.

25 ISCP New Hardware MRP **2**

This cost represents the portion of the purchase of the ISCP that is charged to the construction account and is for the 2nd MRP ISCP. The costs identified are entirely attributable to Number Pooling.

26 ISCP New Software MRP includes annual features **2**

This cost represents the portion of the purchase of the ISCP that is charged to the capital account for software purchases and includes the new MRP ISCP. The costs identified are entirely attributable to Number Pooling.

27 ISCP Annual Software Maintenance fees MRP **2**

Due to the limited quantity of ISCPs in the U S WEST network U S WEST is relying on outside vendors to assist in maintaining the ISCPs. While U S WEST does maintain its own maintenance work force, tier 3 maintenance and some maintenance supplies are more effectively provided by third parties. The costs identified are entirely attributable to Number Pooling.

48 ISCP Additional Database Capacity for Pooled Records **2**

The total data capacity of the ISCPs for ported and pooled records is 5,000,000. Today there are over 1,000,000 records of ported numbers. U S WEST is currently assigning 600,000 numbers per month. Additional hardware capacity is required in a Number Pooling environment to expand the database capacity to 15,000,000 records. Without this added capacity and during a Number Pooling Trial; with an undefined set of NPAs pooled; for an undefined set of States; for an undefined period of time; U S WEST risks being unable to complete calls to ported or pooled numbers. The ISCP database contains records for all ported and pooled numbers in the U S WEST region served by the Western Region NPAC for U S WEST and all other local providers, including the State of Alaska. If the records cannot be populated on the ISCP, responses to direct queries sold to others will generate routing failures. The 5 ISCPs previously placed with LNP and the new ISCP placed for Number Pooling will all be equipped with this feature. Refer to 50 below.

49 ISCP Number Pooling Feature **2**

This feature on the ISCP is required to support Number Pooling's desired intent to represent pooled numbers with Efficient Data Representation (EDR). The intent of EDR is to represent the 1,000 block of pooled numbers as a single entry in the database as opposed to 1,000 individual entries. This capability is made functional when the existing Lockheed Martin NPAC software release 3.0 is implemented. Based upon the vagueness of the FCC order, it is uncertain when EDR will be implemented and ported/pooled record consumption controlled. The 5 ISCPs previously placed with LNP and the new ISCP placed for Number Pooling will all be equipped with this feature.

50 ISCP Increased Database Feature **2**

This feature on the ISCP is required to support the hardware and addressing associated with an increase in database capacity. The total data capacity of the ISCPs for ported and pooled records is 5,000,000. Today there are over

1,000,000 records of ported numbers. U S WEST is currently assigning 600,000 numbers per month. Additional capacity is required in a Number Pooling environment to expand the database capacity to 15,000,000 records. Without this added capacity and during a Number Pooling Trial; with an undefined set of NPAs pooled; for an undefined set of States; for an undefined period of time; U S WEST risks being unable to complete calls to ported or pooled numbers. The ISCP database contains records for all ported and pooled numbers in the U S WEST region served by the Western Region NPAC for U S WEST and all other local providers, including the State of Alaska. If the records cannot be populated on the ISCP, responses to direct queries sold to others will generate routing failures. The 5 ISCPs previously placed with LNP and the new ISCP placed for Number Pooling will all be equipped with this feature. Refer to 48 above.

51 ISCP Increased Query Capacity Feature 2

This feature on the ISCP is required to support the increase in queries expected at the Message Relay Point (MRP) that will be induced by the deployment of Number Pooling. This feature is required as a stop gap measure to be able to continue to provide a guaranteed continuation of service until other more comprehensive relief measures can be provided. This feature must be placed because of the timing between the need due to added MRP queries and the point in time when a 2nd MRP ISCP can be placed into service.

60 ISCP Annual Hardware Maintenance Fees 2

Due to the limited quantity of ISCPs in the U S WEST network U S WEST is relying on outside vendors to assist in maintaining the ISCPs. While U S WEST does maintain its own maintenance work force, tier 3 maintenance and some maintenance supplies are more effectively provided by third parties. The costs identified are entirely attributable to Number Pooling.

Staffing and Personnel Related Costs

With number pooling the personnel related costs are both significant and significant in comparison to the entire project. These are people related costs that will be incurred in direct support of planning, provisioning and maintenance of the number pooling functions and hardware that were added in the network and the administration, inventory management and reporting requirements defined in the National order. See page 19 below for a summary of the additional employees necessary to support number pooling.

28 Network Planning and Project Management term 2

The planning functions are included to design, coordinate and price the changes and various impacts to the switching and signaling networks as well as the staffing impacts in the network organization.

The project management functions are required to manage the implementation of the number pooling program across all departments including managing the changes in the switching and signaling networks and process and procedure changes required with the implementation of number pooling including auditing, reporting and inventory management changes.

It is expected that the need for this work function will phase out during 2002.

29 **Number Administration specialist** **2**

Permanent staffing is required for the new forecasting, administration, receipt and allocation of numbers at a thousands block level at the Rate Center with no more than a 6 month inventory rather than an NXX at the NPA and switch at about 12 month interval. Permanent staffing is also required for reporting on the utilization of numbering resources on a regular basis to the Pooling Administrator as well as in response to state interrogatories which will happen both more frequently and at a broader scope than is presently done. It is anticipated that automation of the process will allow the headcount to remain stable through the life of this reporting period. There is no initial peak in staffing due to the specialization required to analyze, predict and reserve numbers in a timely manner and also that automated systems to support the work group are expected to be available by mid 2001. Source data for this work is derived from the data content provided by item 34 below.

30 **Complex Translations technical consultant and testers** **2**

This work function is a new full time function whose need is generated by the implementation of Number Pooling. It is expected that Number Pooling will generate a significant quantity of trouble conditions. This trouble generation will be true both through Pooling's introduction and ramp up as well as an ongoing problem attributable to anticipated large volumes of pooled numbers. Most methods and processes will be manual during the introduction of Number Pooling. As the number Pooling deployment nears its ultimate penetration towards the end of 2001 and beginning of 2002 U S WEST will be pooling in large quantities of numbers to a significant network base. Even with automated systems it is unclear what percentage of pooled numbers will encounter trouble conditions. The introduction and ultimate deployment will require extensive trouble analysis including the creation of added testing positions in the complex translations organization. Trouble conditions will be referred for testing and maintenance typically from item 36 below. U S WEST does not have any current experience with Number Pooling, nor the trouble conditions to expect with its implementation and ongoing customer maintenance.

31 **Complex translations Tech SME, Proj mgr, Rtg mgr term** **2**

This work function is created as a temporary process to provide technical consultation to the complex translations staff, to create a Project Manager position

for the implementation of Number Pooling and to create a Position to analyze routing impacts associated with the introduction of Number Pooling. These people are expected to be on staff only until the initial introduction of Number Pooling is complete about the end of 2002.

32 **Complex translations load management and translators** 2

This work function is in addition to the current complex translators required. The added work of building number translations will increase when numbers are pooled into a rate center. The additions are required to keep up with the projected demand and the ability to keep numbers provisioned on the switches in a timely manner to continue to provide service for the customer. The shortened number inventory available to the rate center rather than the switch as is currently done increases total staffing.

33 **Number preparation, analysis and correction term** 2

This work function is incurred entirely to support Number Pooling and the requirement to donate blocks of numbers to a pool. This function analyzes the NPA-NXXs associated with U S WEST's switches to determine which number blocks should be donated to a pool and which if any numbers must be ported back into the switch prior to donation. Without this function it is not possible to determine which blocks should or should not be donated and customers could easily be inadvertently disconnected from service. This separate function is only required during the initial deployment and introduction of Number Pooling. It is expected that this function will terminate about the end of 2001. It is expected at this time to transition the work to the work function described in 34 below.

34 **Number reservation, reporting & auditing** 2

This work function is augmenting existing reporting functions to meet the newly defined requirements of the FCC on an ongoing basis. The order as generated by the FCC requires very basic and fundamental changes in the manner in which numbers are administered and number usage reported. Among the contributors to this increased headcount requirement are the drastic reduction in permitted number inventory from 12 months to 6 months and the restructuring of the inventory base from the NXX at the switch to 1K block at the rate center. Other major contributors are the changes in number usage definitions and reporting interval and content as well as the creation of an audit trail usable by outside auditors. The added staffing is required to fulfill these new requirements established by the FCC.

35 **Interim reporting and analysis term** 2

This work function is new with the Number Pooling order and created just for the period of time required to generate the first in a new set of analysis and reports on U S WEST's usage of numbers for the August 1st 2000 report to the FCC. This is

a term function using the new numbering definitions and reporting structure as defined by the FCC. Without these people being in place the reports required by the FCC in August, 2000 cannot be generated.

36 Repair, repair screening & repair analysis **2**

This function handles the repair process from the initial call by a customer through the repair analysis and added function of repairing the problem attributable to Number Pooling. There may be handoffs of trouble conditions for repair to item 30 above. When looking at the introduction of LNP with a trouble rate of 25% or more, orders processed in a pooling environment can be expected to encounter a like percentage of trouble conditions. U S WEST does not have any current experience with Number Pooling, nor the trouble conditions to expect with its implementation and ongoing customer maintenance.

55 VMS System Administrator **2**

This work function is required with the implementation of number pooling to track, assign, route and audit the creation and placement of pooled NPA-NXX-Xs internal to the U S WEST voice messaging product. This position is also responsible for methods, processes and auditing of the translations done on the messaging router in item 59 above.

56 VMS Order Processing **2**

This work function is required in part with the expected manual implementation of number pooling and ongoing when the messaging routers are placed. The initial orders for voice messaging associated with pooled numbers will have been manually assigned and will require manual processing to correctly associate the customer and switch and VRU. When the messaging router is placed this work function will be modified to include tracking and validation of order processing into the messaging router.

37 Official communications for added headcount expense **2**

This cost represents the communications needs for the added headcount, both term employees and permanent employees when required. Where communications facilities are in place this expenditure is not incurred.

38 Official communications for added headcount capital **2**

This cost represents the communications needs for the added headcount, both term employees and permanent employees when required. Where communications facilities are in place this expenditure is not incurred.

39 **Furniture, floor space** 2

This cost represents the furniture and floor space needs for the added headcount, both term employees and permanent employees. Where facilities exist there will be no incurred expenditures.

40 **PCs, Terminals Software & Lease for added HC expense** 2

This cost represents the computing needs for the added headcount, both term employees and permanent employees. Due to the large requirement for added headcount and the uncertainty of required timing many of the added employees are term and do not require purchased computing capabilities.

41 **PCs, Terminals for added HC capital** 2

This cost represents the computing needs for the added permanent employees when required. Some computing equipment is already in place.

42 **Rewards and recognition across business units** 2

This cost represents a pool of money set aside for unique recognition for work well done. This will be dispensed, most likely in part, and if it is earned, to some or all of the implementation team.

43 **Incremental process through consultant** 2

Due to the assumed and interpreted time frames for the introduction of Number Pooling and its resultant massive changes in number administration, it is believed that additional assistance from consultants will be required to create those changes. This is an allocation for those consultants if required.

44 **O&T training** 2

Due to the magnitude of changes being introduced by Number Pooling and creating a number pool per rate center most jobs will be impacted. This cost represents the anticipated needs to design, develop, produce, distribute and present training to the Network organization. It is anticipated that the training will be multi-media consisting of videotape, web based instruction and instructor lead presentations as is most benefiting the targeted work group. Not all work groups require the same level of detail, some require very specific and detailed instruction.

45 **Travel & Voucher** 2

It is anticipated that there will be some travel required for the implementation Number Pooling. The specific needs are not clear, but can consist of specialized on site support for installation or testing or meeting with industry representatives

for pooling introduction or regulators concerning the specifics of U S WEST's implementation and status.

46 Maintenance on Capital hardware placed **2**

This cost represents the future maintenance needs for capitalized hardware placed. This cost occurs for each year after the first year the capital is placed, not during the year the capital is placed. This cost represents personnel time for trouble shooting and repair as well as component parts that require replacement and are not included in some type of warranty.

47 Consulting fees **2**

These are fees for anticipated costs for Advanced Technologies and Telcordia for assistance with standards and their interpretation. Also anticipated are joint industry meetings to help ease the introduction of Number Pooling with a common understanding of implementation problems.

The following table summarizes the additional employees necessary to support number pooling for the above line items.

	2000	2001	2002	2003	2004	2005
	Max	Max	Max	Max	Max	Max
Group Id 28	6	6	3	0	0	0
Group Id 29	3	3	3	3	3	3
Group Id 30	9	9	9	9	9	9
Group Id 31	3	3	2	0	0	0
Group Id 32	4	4	4	1	1	1
Group Id 33	75	66	0	0	0	0
Group Id 34	26	25	24	24	24	24
Group Id 35	36	0	0	0	0	0
Group Id 36	27	33	30	30	30	30
Group Id 55	1	3	12	12	12	12
Group Id 56	1	3	12	12	12	12
Total	191	154	98	91	91	91

WORKPAPER 3

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OSS Cost Recovery for Number Pooling

System Cost Estimate

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
Network Rtng	Expense - Shared									
	NPAC	Western Region Numbering Administration System Release 3.0	##	##	##	##	##	##	##	$65,386 per month - U S WEST 30% allocation of Western Region LLC monthly charges; assumes that 1K Pooling cost allocation will be the same as LNP Initial payment due approximately October '2000', with the final payment due in September '2002'
	NPAC - Admin Cost	Western Region Numbering Administration System 3.0	##	##	##	##	##	##	##	Ongoing administrative costs are based on $2.16 per pooled telephone number, which would be allocated in the same manner as the NPAC/SMS, with approximately 30% allocation to U S WEST. *The ongoing administrative costs will continue past 1Q 2003, although the NPAC/SMS agreement will be renegotiated by that time. Therefore, for purposes of this cost recovery spreadsheet the quarterly costs beyond 1Q2003 remain fixed at the 1Q 2003 level.
	NPAC - v1.4	NPAC 1.4 cost are included because we assume that State Trials will start prior to implementing NPAC v3.0	##	##	##	##	##	##	##	NPAC v 1.4 cost for 1K pooling - $158,103 is U S WEST's portion. We will turn up the pooling feature in October, so IT spread the cost over the next 30 months at a monthly cost $5,270.
Network Rtng	Expense - Recoverable									
	Leased worker charges for Number Pooling deployment for NPAC and SOA/LSMS	Resources required to install, test, and deploy the SOA/LSMS and interface with the NPAC v3.0. Interoperability Test all three US WEST Regions	0	1,871,000	1,871,000	0	0	0	3,742,000	
	Deployment Headcount for NPAC and SOA/LSMS	Resources required to install, test, and deploy the SOA/LSMS and interface with the NPAC v3.0.	180,000	270,000	90,000	0	0	0	540,000	This includes cost to support Industry NPAC v3.0 to ASMS v4.0 test, Internal Compliance Test, monitor the links to the NPAC, NPAC Correct and re-validate and to install and test future releases of the SOA/LSMS.
	LSMS Interface and Event Manager	The LSMS/SOA interface and Event Manager which will also link to LSMS/SPACE will provide access to the critical status data being supplied by NPAC broadcasts.	0	250,000	0	0	0	0	250,000	It is essential for service order transmission completion validation and NPAC work completion validation
	LNP Database	New database used to determine which switches can handle pooled in NPA/NXX-Xs	0	250,000	0	0	0	0	250,000	Identifies which switches are 'pool in' capable
Program Office	Expense - Recoverable									
	IT's Core Number Pooling Team	IT resources required to support the US WEST implementation of Number Pooling	1,707,518	3,165,043	3,165,043	0	0	0	8,037,604	Costs are associated with headcount required to support the Number Pooling Program Office (Director, Project Manager/Account Managers, Architects, Analyst, Program Manager, PMA, AA and Financial Manager)

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
TN Administration	**Expense - Recoverable**									
	Development - new reporting and forecasting system	A new application to support donating and receiving 1K blocks; Reporting and forecasting	1,500,000	0	0	0	0	0	1,500,000	Identifies 1K blocks and the level of contamination. Will also report on the FCC required definitions of number category usage. Provide forecasting capability
Manual Trials	**Expense - Recoverable**									
	State Mandates	Develop interim systems mechanization to support trial. Also provide resources and processes to support trial's manual workarounds.	2,048,000	14,507,000	0	0	0	0	16,555,000	State Mandate support will be supplied by 70% employees and 30% consultants. Rate was calculated at $68.68 for employees and $125 for consultants. Each state mandate will require 25 headcount to support systems fall-out and manual provisioning of service orders. If multiple states within a USW region are allowed to perform a state trial we assume that the first state will require 25 resources with each additional state requiring 10 incremental resources. Number of state mandates US WEST will support as a manual implementation is estimated at 6 states. (AZ, CO, MN, OR, UT, WA) per Mike Whaley's 5-10-00 Draft Schedule.doc. IT estimates full system mechanization will be available by 11/1/2001. Headcount will be ramped up 1 month prior to the start of state mandate.
PROVISIONING	**Expense - Recoverable**									
	Telecordia Systems License Fees		##	##	##	##	##	##	##	
	SOAC (all regions)	Service Order Analysis and Control. SOAC is the hub of the service order provisioning systems flow and provides service order routing to the SOA/LSMS, inventory, activation, and billing systems.	##	##	##	##	##	##	##	SOAC will process the new Pooling FIDs and send to the appropriate systems. Routing tables and the LRN determination tables will be expanded to support the allocation to a wire center and switching machine at less-than-NXX level. SOAC will also send the new FIDS to PAWS when errors occur for orders involving the Pooled TNS
	LFACS (All regions)	Loop Facility Assignment and Control. Provides cable pair information for local loops to SOAC. It does a lookup for addresses, terminals, and services and sends the information to SOAC.	##	##	##	##	##	##	##	No changes required
	PAWS (All Regions)	Provision Analysis Workstation System. Provides manual corrections for service orders that do not automatically flowthru the provisioning systems.	##	##	##	##	##	##	##	Required modifications to support corrections for any Pooled service orders.

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
	SWITCH (All Regions)	The SWITCH system takes the telephone number information from CNUM, cable pair information from LFACS and guides the information to the correct network location.	##	##	##	##	##	##	##	System will provide a new utility to handle donating and receiving Pooled 1K blocks. Moving contaminated numbers with LRN to Ad-Hoc inventory
	WFA/C (All Regions)	Work and Force Administration/Control. Mechanizes the administration of the installation and maintenance of designed and non-designed circuits. Directs the flow of work items to WFA/DI and WFA/DO	##	##	##	##	##	##	##	WFA/C required modifications to identify pooled in numbers and pooled out numbers to the WFA/DO and WFA/DI systems.
	WFA/DI (All Regions)	Work and Force Administration/Dispatch In. Automates the work assignments of technicians in the centers. Assists in pricing, loading, and tracking work requests.	##	##	##	##	##	##	##	No changes required
	WFA/DO (All Regions)	Work and Force Administration/Dispatch Out. Automates the support of the dispatch function for outside plant installation, maintenance, and routine work. It provides screening, pricing, mapping, routing, scheduling, and loading functions.	##	##	##	##	##	##	##	No changes required
	CNUM (All Regions)	Telephone number administration.	##	##	##	##	##	##	##	CNUM will provide batch utility that can be initiated from the GUI screen that will be used to set the correct status on Pooled Out number, Pooled In numbers and contaminated numbers. The System will also store a Pooled indicator
Internal Systems Development	**Expense - Recoverable**									
	PM, Testing, Support, small systems development	Project management, systems testing, integrated testing with business units and network, and industry level testing.	330,000	750,000	750,000	0	0	0	1,830,000	
	New Development to support Cause Code 26 - CNUM, SWITCH, ASMS and NEs	Misrouted call error handling - Allows US WEST to accommodate misrouted calls that are received by other networks providing the caller with an announcement that the dialed number has been ported and/or pooled.	##	##	##	##	##	##	##	This new system must have the capibility to synchronize data contained in CNUM, ASMS, SWITCH and the Network Element and provision that information in a trigger like mechanization through MARCH, so that the network has the intelligence to route misrouted calls. Cost estimates are based on internal development cost. If we are unable to have access into Telecordia systems to effectively develop a system that supports Cause Code 26, then we will ask Telecordia to develop a solution, which will more than likely increase cost.

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
	New Development to support the FCC reporting requirements for both pending and reserved numbers	New database and front end system that will alert the Service Delivery Consultants that a TN is about to expire the 5 day Pending and 45 day Reserve thresholds	1,000,000	0	0	0	0	0	1,000,000	System must be able to query CNUM, SOPS and CRIS to identify the TNs that are about to expire the reporting threshold and alert the Service Delivery Consultants
	SOPAD, SOLAR, RSOLAR and SONAR	Manages all service orders for each US WEST region. Each service order is validated and distributed to downstream systems. The Service Order Processor maintains a status of a service order from initiation to completion.	1,750,000	5,750,000	0	0	0	0	7,500,000	For every service order written with a 'Pooled In' TN, the SOPS must have the capability to auto populate the Pool FID and the Exchange Key.
	Other Systems (SDTM, ROMS,Location Database and FAS)	Systems that may require minimal changes	500,000	500,000	500,000	0	0	0	1,500,000	Most of this systems have already been enhanced to support LNP and those enhancements should apply for Number Pooling
	APRIL	Automated activation system forline side translations to the network element.	100,000	400,000	400,000	0	0	0	900,000	Set LSA triggers and provide appropriate updates to the network elements based on the exchange key and Pool FID
	LSDB	Location Shared Data Base. This is a new data base created specifically to communicate new NPANXXs for LNP to the Legacy Systems and Network translators for correct and timely LN setup.	100,000	100,000	100,000	0	0	0	300,000	Change database view to report at NXX-X level
	RTT	Referral Tracking tool. Tracks held orders in all regions greater than 30 days.	50,000	50,000	50,000	0	0	0	150,000	Report held orders at NXX-X level
	Facility Check, Network Information Applet	This is a group of applications that supports spare facilities for additional lines and services.	150,000	150,000	150,000	0	0	0	450,000	Added Donate and Receive capabilities to Facility Check for Pooling support. The Network Information Applet is a application which provides rate center information to the Pooling Administrator to support requesting new 1K blocks
	Magic	Service order error correction service supporting all retail markets channels (consumer, small and large business)	200,000	0	0	0	0	0	200,000	Enhancements needed to track and correct errors associated with pooled in numbers. Enhancements will also include a way to auto generate "R" record orders to handle contamination of donated 1K blocks
	Network Information Applet (NIA)	A front end application that provides customer contact personnel with the necessary information to determine whether number portability can be offered to a U S WEST customer.	100,000	100,000	100,000	0	0	0	300,000	Enhancements will enable customer contact personnel to determine if TN pooled in to native or non-native switch and whether NPA/NXX-X for the TN is already opened in the non-native switch and supporting systems. Needs to be integrated w/ Consulting +.
	WIND	Database used to support NIA	50,000	50,000	50,000	0	0	0	150,000	Stores and maintains data for NIA to determine whether TN is opened in non-native switch
	Repair Group Voice Response Unit	Call handling system that routes incoming calls to the appropriate group	100,000	100,000	0	0	0	0	200,000	Upgrade required to appropriately route calls related to pooled numbers into the repair center.

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
	Provisioning and Repair Order Tool Effecting Complex Translations (PROTECT)	The work force management system for the complex translations group.	100,000	100,000	0	0	0	0	200,000	Enhancements are needed to integrate PROTECT with service order applications in order to inform complex translators where NPA NXX combinations need to be opened and to develop a tracking and update process. Would require additional enhancements to support Cause Code 26
BILLING	Expense recoverable									
	Billing	Billing Systems	504,676	757,012	0	0	0	0	1,261,688	Calculating Taxing and Rating will be based on Service Address as opposed to NPA/NXX or EXK
Repair	Expense recoverable									
	LMOS	Develop an LMOS Replacement	##	##	##	##	##	##	##	This develop is required because porting/pooling break the fundamental database design of LMOS. If it were not for pooling LMOS would not have to be replaced. These cost estimates are per Lucent Technologies which developed LMOS
Total Maintenance			0	2,207,500	5,641,500	$6,963,000	$6,963,000	$6,963,000	28,738,000	Maintenance of software, both purchased and developed in house, covers keeping the software current with the operating systems they run on, back up and recovery procedures, and database management. 11-15 percent of total spent is normal maintenance exp.
Total Expense Recoverable			**14,440,162**	**60,372,427**	**14,931,257**	**7,770,810**	**7,755,000**	**7,755,000**	**113,024,656**	

Functional Area	Application Name	Application Description	2000 Cost	2001 Cost	2002 Cost	2003 Cost	2004 Cost	2005 Cost	Total Cost	Description of New Developments and Enhancements
TN ADMIN.	**Capital-Recoverable**									
	Hardware	Hardware upgrades to support Internal Developed software	200,000	2,000,000	0	0	0	0	2,200,000	Willl support new hardware requirements for internal systems development.
	Hardware	New server and database	1,000,000	0	0	0	0	0	1,000,000	Will support new requirements for TN Administration, Forecasting and Reporting
	Hardware	Hardware upgrades to support Telecordia solution	##	##	##	##	##	##	##	Will support hardware upgrades for the Telecordia provisioning systems
REPAIR	**Hardware**	LMOS Replacement	##	##	##	##	##	##	##	New hardware required to host an LMOS replacement
Total Capital Recoverable	**TOTAL**		**1,500,000**	**11,000,000**	**0**	**0**	**0**	**0**	**12,500,000**	

PROVISIONING	**Expense - Non Recoverable**									
	Telecordia Systems License Fees		##	##	##	##	##	##	##	
	CNUM, SOAC, MARCH, WFA/C and NSDB	Currently the provisioning of Direct Inward Dial (DID) is done manually. This new package would allow the service order process to automate the provisioning of regular DID and the porting of DID ranges (Import, Location and exporting)	##	##	##	##	##	##	##	Mechanized the Porting In/Out of DID ranges. This package is important so that US WEST will accurately report to the FCC required Number Categories. The cost of this enhancement is expected to be offset by efficiencies in operation.
Internal Systems Development	**Expense - Non Recoverable**									
	Testing new DID package	Systems and integrated testing with business units to ensure the package works properly with other US WEST systems and processes	##	##	##	##	##	##	##	The cost of this enhancement is expected to be offset by efficiencies in operation.
Expense - Non Recoverable	**TOTAL**		##	##	##	##	##	##	**4,300,000**	

WORKPAPER 4

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Number Pooling Service Delivery Costs
Type 2 (Recoverable)

	Acct. Code	2000	2001	2002	2003	2004	2005	Total
Headcount								
Program Office	6623	3	3	0	0	0	0	
Methods & Procedures	6623	8	8	2	0	0	0	
Training	6623	6	4	0	0	0	0	
Operator & Information Services	6622	4	0	0	0	0	0	
Backroom	6623	6	89	0	0	0	0	
Service Negotiation	6623	94	238	64	63	63	63	
Total Headcount		121	342	66	63	63	63	
Expense								
Program Office	6623	2,275,277	1,017,167	0	0	0	0	3,292,444
Methods & Procedures	6623	311,604	611,205	310,202	0	0	0	1,233,011
Training	6623	1,745,620	1,003,830	13,000	13,000	2,000	2,000	2,779,450
Operator & Information Services	6622	250,000	250,000	0	0	0	0	500,000
Backroom	6623	79,208	6,366,003	0	0	0	0	6,445,211
Service Negotiation	6623	1,405,544	8,170,796	2,624,673	2,636,770	2,715,747	2,803,908	20,357,438
Total Expense		6,067,252	17,419,002	2,947,875	2,649,770	2,717,747	2,805,908	34,607,554
Capital								
Program Office	6623	606,000	0	0	0	0	0	606,000
Methods & Procedures	6623	16,000	0	0	0	0	0	16,000
Training	6623	0	0	0	0	0	0	0
Operator & Information Services	6622	1,500,000	500,000	0	0	0	0	2,000,000
Backroom	6623	12,000	166,000	0	0	0	0	178,000
Service Negotiation	6623	197,000	304,000	0	0	0	0	501,000
Total Capital		2,331,000	970,000	0	0	0	0	3,301,000
Expense and Capital Total								
Program Office	6623	2,881,277	1,017,167	0	0	0	0	3,898,444
Methods & Procedures	6623	327,604	611,205	310,202	0	0	0	1,249,011
Training	6623	1,745,620	1,003,830	13,000	13,000	2,000	2,000	2,779,450
Operator & Information Services	6622	1,750,000	750,000	0	0	0	0	2,500,000
Backroom	6623	91,208	6,532,003	0	0	0	0	6,623,211
Service Negotiation	6623	1,602,544	8,474,796	2,624,673	2,636,770	2,715,747	2,803,908	20,858,438
Total Expense and Capital		8,398,252	18,389,002	2,947,875	2,649,770	2,717,747	2,805,908	37,908,554

Number Pooling
Service Delivery Cost Descriptions

Wholesale Service Delivery

The implementation of Thousands Block Number Pooling will impact procedures and processes for pre-ordering, ordering and provisioning for our wholesale customers to ensure compliance with the FCC guidelines for Number Pooling and other number conservation measures.

Wholesale Service Delivery costs represent incremental service order negotiation time required to process orders that require number assignment or negotiations regarding reserved telephone numbers. Number assignments are performed for resold lines, Public Access Lines and Unbundled Network Elements – Platform (UNE-P) and any other services that may have numbers associated with them. If the assigned number is a pooled number, a manual written order will be required until full systemization is in place to support Number Pooling.

The percentage of Service Orders requiring a new TN assignment was multiplied by the additional time required per order. The total additional time required was divided by productive time to determine the full time equivalent (FTE) occupational headcount in the Service Delivery organization.

Number Pooling and the related number conservation initiatives will require 3 additional managers, to establish measurements, report on results, participate in industry forums and to ensure that the industry, federal and state requirements are being met from an overall systems, network and process perspective.

Retail Service Delivery

With the implementation of Thousands Block Number Pooling, major impacts to Retail Service Delivery will occur in the Program Office, Methods and Procedures, Training Development and Delivery, Operator and Information Services, Service Negotiation, and Backroom Operations.

Service Negotiation Time (Frontline)

These costs represent the incremental service order negotiation time required to process orders for end user customers. In NPA's where number pooling is deployed, the following additional functions are required to be performed by a service representative:

1. Check to see if the assigned number is a pooled number.
2. All pooled numbers require manual written orders and additional order entries until systemization is available (estimated 4th Quarter 2001).
3. Explain ramifications to the customer of the newly defined categories per the FCC Numbering Optimization Order.

The additional time required will increase Service Negotiations headcount from the current level of 5,667 by 238 (2001 at peak) to 5,905 or a 4.2% increase to current

workload. Headcount and negotiation time will decrease as mechanized processes deploy and reduced time to process orders occurs.

Training Development and Delivery

These costs are representative of the costs to create and deliver training to sales and service consultants, order writers and service order error correction personnel. Training will provide an overview of Number Pooling including the process and criteria for issuing orders with Pooled Numbers and an in depth understanding of Number Usage Mandated by the FCC. These costs include Instructor lead training including instructor time, travel and materials to insure all FCC Mandated rules are communicated to Service Representatives.

Methods and Procedures

Methods and Procedures require additional headcount to work on Number Pooling methods and procedures. Due to the FCC ruling on 45 day limitation requirements on reserved numbers additional managerial and occupational headcount are necessary. This includes: identification of customers that have reserved numbers, notification of customers to advise of reserved status and service order issuance to remove the reserved telephone numbers from accounts.

Backroom Costs

Represents personnel and associated costs to the Backroom. The additional personnel will be required to accommodate the expected increase in Service Order Errors and increases to manual order typing due to the FCC ruling on Number Pooling. As systems are upgraded, the typing of these orders will be eliminated. In addition, orders will be required to retain customers that currently reside in a pooled thousand block of numbers that is contaminated.

Operator Information Services (OIS)

Represents additional headcount and system work to handle the complexities associated with directory listings. These costs are incurred over a two year period and will not be necessary after 2001. These costs include:

1. Assignment of White Page Directory Code to Pooled Numbers
2. Accurate Community information for Directory Assistance Data Base
3. Ability to contractually meet numerous List Product agreements
4. Revise existing system work to allow for White Page Directory Code by other means rather than NPA/NXX.

Program Office

Within the various units of U S WEST coordination must take place to insure a smooth deployment of Number Pooling. The Program Office will consist of project managers, and program managers and a business case analysts. System upgrades that are out of the scope of the Information Technologies Organization are also identified here. These costs include system requirement and system testing.

CERTIFICATE OF SERVICE

I, Rebecca Ward, do hereby certify that on this 19th day of May, 2000, I have caused a copy of the foregoing **COMMENTS OF U S WEST COMMUNICATIONS, INC.** to be served, via hand delivery, upon the persons listed on the attached service list.

Rebecca Ward

Rebecca Ward

William E. Kennard
Federal Communications Commission
8th Floor
Portals II
445 12th Street, S.W.
Washington, DC 20554

Gloria Tristani
Federal Communications Commission
8th Floor
Portals II
445 12th Street, S.W.
Washington, DC 20554

Michael K. Powell
Federal Communications Commission
8th Floor
Portals II
445 12th Street, S.W.
Washington, DC 20554

Harold Furchtgott-Roth
Federal Communications Commission
8th Floor
Portals II
445 12th Street, S.W.
Washington, DC 20554

Susan P. Ness
Federal Communications Commission
8th Floor
Portals II
445 12th Street, S.W.
Washington, DC 20554

Lawrence E. Strickling
Federal Communications Commission
Room 5C-345
Portals II
445 12th Street, S.W.
Washington, DC 20554

L. Charles Keller
Federal Communications Commission
Room 6A-324
Portals II
445 12th Street, S.W.
Washington, DC 20554

Jeannie Grimes
Federal Communications Commission
Room 6A-207
Portals II
445 12th Street, S.W.
Washington, DC 20554

(including 3x5 inch diskette w/cover letter)

Thomas J. Sugrue
Federal Communications Commission
Room 3C-207
Portals II
445 12th Street, S.W.
Washington, DC 20554

Peter Wolfe
Federal Communications Commission
Room 3A-101
Portals II
445 12th Street, S.W.
Washington, DC 20554

Tejal Mehta
Federal Communications Commission
Room 6A-431
Portals II
445 12th Street, S.W.
Washington, DC 20554

Cheryl Callahan
Federal Communications Commission
Room 6A-207
Portals II
445 12th Street, S.W.
Washington, DC 20554

Aaron Goldberger
Federal Communications Commission
Room 6A-207
Portals II
445 12th Street, S.W.
Washington, DC 20554

International Transcription
Services, Inc.
1231 20th Street, N.W.
Washington, DC 20036

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